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bcc
Subject Sites Recommended for Transition Zone Water Sampling

Eric and Chip,

DEQ recommends that the LWG collect RD3A TZW samples at the following sites:

- Premier Edible Oil
- Oregon Steel Mills
- Willamette Cove
- Gunderson Area 3 (pending data may change this recommendation)

I suggest that we discuss these recommendations and the information provided below at the upcoming TCT and then forward EPA's recommendation to the LWG.

The LWG identified 21 Category A Sites in their 4/22/05 "RD 2 GW Pathway Assessment SAP". These Category A Sites were defined as sites where COIs in GW have either been confirmed to discharge to the river or have a reasonable potential to discharge. All Category A Sites were considered for inclusion in the RD 2 GW Pathway Assessment. EPA/partners & the LWG met in 1/05 & identified a subset of 12 high priority Category A Sites that would be carried forward into the RD 2 GW Pathway Assessment. Nine of the 12 high priority Category A Sites were included in the LWG's 2005 TZW sampling (including the pilot study). The 3 remaining high priority sites not included in the 2005 RD 2 GW Pathway Assessment are: Time Oil NW Terminal, Premier Edible Oil, & Oregon Steel Mills.

EPA decided not to require TZW sampling at Time Oil. DEQ recommends that TZW sampling be conducted off the southern portion of the Premier Edible Oil site. Oregon Steel Mills was originally identified as a high priority Category A site because of the TPH groundwater plume down gradient of the former large oil

sumps at the site. Subsequent work determined that the TPH in groundwater is the result of naturally occurring organic acids and not related to operation of the former oil sumps. Consequently, we are no longer recommending TZW sampling associated with the upland TPH detections. OSM site work has, however, identified groundwater impacts from metals for which DEQ is recommending that TZW sampling be conducted.

DEQ revisited the 12 remaining Category A Sites (21-9 = 12) to determine if we should recommend any of these sites for RD 3A TZW sampling. I also polled our DEQ PMs to see if any recent upland information would suggest adding new sites to the high priority Category A Site list.

DEQ project managers were also asked if they had any new information regarding a previously unidentified groundwater plumes that could impact the harbor or if there was any new information about the potential of plumes set back from the river that could in time impact the harbor. No new plumes of concern have been identified, and no new information suggests that there are upland plumes that haven't yet reached the river, but will in the future.

Below is the updated groundwater information on the following sites.

Union Pacific Rail Yard

Gunderson – Areas 2 and 3

Portland Ship Yard

McCall Oil

Triangle Park

Willamette Cove

Marine Finance

Foss/Brix

GP Linnton

NW Pipe

Oregon Steel Mills

Premier Edible Oils

Lakeside

GS Roofing

Sulzer Pumps

DEQ Project managers were asked to respond to the following questions.

1. Has there been additional upland groundwater investigation or data reported at the site in the past year?

2. Are there groundwater impacts at the site?

3. If there are groundwater impacts, does the plume reach the river?

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations.

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date.

6. Do you think that characterization of off-shore transition zone groundwater is warranted?

UPRR-Albina

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *Yes, new monitor wells installed in 1st qtr 2006 .*

2. Are there groundwater impacts at the site? *Y* es

3. If there are groundwater impacts, does the plume reach the river? *Does not currently appear to based on site information*

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations. *N/A*

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *Pretty certain for main portion of site.* Southern portion needs riverward investigation down gradient and off property of UPRR.

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *No*

Gunderson - Area 2

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *No*

2. Are there groundwater impacts at the site? *Yes, local sources of groundwater contamination have been identified (i.e., aromatic VOCs).*

3. If there are groundwater impacts, does the plume reach the river? *No, current site data indicate that the plumes are not reaching the river and that impacted groundwater has not migrated significant distances away from known source areas.*

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations. See no. 3

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *Pending data from recently installed riverbank wells will add to the certainty of this conclusion. The expectation at this time is that the new monitoring well data will confirm the above conclusion.*

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *No.*

Gunderson Area 3

1. Has there been additional upland groundwater investigation or data reported at the site in the past year?

No, but see answer to question 2.

2. Are there groundwater impacts at the site? *Yes, based on historic site operations, reconnaissance groundwater samples, and riverbank soil samples, in late 2005 DEQ required Gunderson to expand the groundwater monitoring network by installing monitoring wells near the top of the riverbank along the Area 3 waterfront and in the corner of the site encompassing the former ship dismantling area.*

The results of sampling have not been reported to date, but will be included in the Area 3 RI report that Gunderson is currently preparing.

3. If there are groundwater impacts, does the plume reach the river? *See no. 2.*

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations.

Reconnaissance sampling detected PCBs, PAHs and metals above JSCS SLVs. Reconnaissance sampling techniques can yield turbid samples which bias high the concentrations of these contaminants. Groundwater data from the monitoring wells should provide more representative data regarding the presence and concentrations of these contaminants in site groundwater. Because of the in-water RI TZW question, DEQ has requested that Gunderson provide this data separate from the pending RI report.

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *Not applicable at this time.*

6. Do you think that characterization of off-shore transition zone groundwater is warranted?

Pending review of the monitoring well data, DEQ recommends developing plans for TZW sampling adjacent to Area 3. This recommended is based on the results of previous reconnaissance groundwater sampling that indicate shallow groundwater is contaminated by PCBs, PAHs, and metals. TZW sampling should focus on the area offshore of the former ship dismantling operation.

Portland Ship Yard

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *yes - annual monitoring of existing wells*

2. Are there groundwater impacts at the site? low level

3. If there are groundwater impacts, does the plume reach the river? *maybe but probably at very low levels*

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations. *As (up to 16 ppb) VC (up to 6 ppb) other metals and PAHs historically exceeded SLs but more recent sample results have not.*

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date.

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *No. It is unlikely that tzw data would be able to differentiate low levels of arsenic in groundwater from impacted sediment and the vinyl chloride levels are relatively low.*

McCall Oil

1. There has been no additional GW investigation in the last year.

2. There is a diesel-range plume, slightly exceeding a few PAH SLVs in one or two shoreline wells. In a weight-of-evidence evaluation (e.g., amount and frequency of exceedence), DEQ concluded that source control measures were not required (note that this determination has not yet been submitted to EPA for review).

3. The upland site is very well characterized for the nature and extent of contaminants.

4. There is a CVOC plume that has not reached the shoreline.

6 .DEQ is not recommending TZW characterization given the "weak" PAH plume detected

in shoreline wells. In addition, the potential McCall plume discharge location is in the

vicinity of Willbridge impacts and storm water discharges.

Triangle Park

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *Yes, groundwater samples were collected from eight monitoring wells located at/near the top of the riverbank along the site waterfront in April, July, and November 2005.*

2. Are there groundwater impacts at the site? *Yes, low concentrations of diesel-range & oil-range petroleum hydrocarbons, PAHs, & metals have been detected in groundwater at or near the river.*

3. If there are groundwater impacts, does the plume reach the river? *Data does not indicate that laterally extensive groundwater plumes occur. That said, groundwater monitoring data collected at/near the top of the riverbank indicate that concentrations of "total metals" exceed JSCS SLVs .*

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations.

Yes, the detected total concentrations of metals have exceeded chronic toxicity screening criteria (aluminum, cadmium, chromium, copper, lead , manganese, nickel, silver, and zinc); bioaccumulation screening values (arsenic, manganese, and mercury, and the MRL/MDL for mercury); and MCLs/PRGs (aluminum, arsenic, and manganese). The detected concentrations of many metals (e.g., aluminum, manganese) may be representative of natural conditions.

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date.

Based on the site history, length of time for groundwater contamination to migrate, and results of groundwater sampling along the waterfront, there is moderate to high certainty that the results are representative of current and reasonably likely future conditions.

6. Do you think that characterization of off-shore transition zone groundwater is warranted?

No, DEQ currently considers groundwater at the Triangle Park site to be a low to medium priority for source control.

Willamette Cove

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *Yes, sampling of existing wells.*

2. Are there groundwater impacts at the site? *Yes, low level detections of metals and PAHs.*

3. If there are groundwater impacts, does the plume reach the river? *Not clear at this time.*

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations. *A screening has not been completed .*

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *The adequacy of upland groundwater characterization is considered moderate to high. The formal groundwater JSCS screening has not yet occurred, but it is likely that the screening will conclude that the groundwater migration path is a low priority for source control.*

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *Yes. A removal action was conducted, that removed an oil impacted beach sediment area. However, the removal was limited to above the mean low water line. Residual sediment impacts below the water line remain which produce significant sheening over an approximate 20' x 20' area. DEQ recommends that TZW sampling be conducted in this area.*

Marine Finance

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *No*

2. Are there groundwater impacts at the site? *No.*

3. If there are groundwater impacts, does the plume reach the river? *No .*

4. Do COPCs exceed JSCS SLVs at or near the *river bank? If so please provide a list of the main COPCs and approximately concentrations. No .*

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *High certainty. A source control evaluation has been completed and was submitted to EPA in September 2004. EPA did not comment .*

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *No.*

Foss/Brix

1. Has there been additional upland groundwater investigation or data reported at the site in the past year?

Yes, Brix collected groundwater samples from uplands monitoring wells on a quarterly basis during 2005. In addition, the shallow groundwater pathway was further evaluated by collecting and analyzing a groundwater seep sample in September 2005.

2. Are there groundwater impacts at the site?

Yes, groundwater has been impacted by releases from gasoline and lube oil underground storage tanks.

3. If there are groundwater impacts, does the plume reach the river?

Yes, PAHs have been detected in groundwater at or near the top of the riverbank and at the riverbank.

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations.

JSCS SLVs, including federal and state "Portland Harbor specific fish consumption rates" and PRGs for many PAHs have been exceeded in monitoring wells located at or near the top of the riverbank. PAHs are typically detected at or near the MRL of 0.02 micrograms per liter (ug/L).

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date.

Although PAHs may be reaching the river at concentrations that exceed certain SLVs, based on the results of quarterly groundwater monitoring, DEQ has moderate to high certainty that the groundwater pathway at the Brix site is a low to medium priority for source control.

6. Do you think that characterization of off-shore transition zone groundwater is warranted?

No because TZW sampling is not feasible due to site specific conditions. Groundwater impacts occur in a shallow water bearing zone (WBZ) that daylights at the riverbank (i.e., above the bottom of the river). There is no sediment at this location. The WBZ is exposed during seasonal low river levels and seep samples can be collected at this time. (Note that seep samples have been collected in the past).

GP Linnton

1. There has been no additional GW investigation in the last year.

2. Existing site data does not indicate significant groundwater impacts.

3. Additional upland work is necessary to screen groundwater in the vicinity of a former lumber mill/creosoting operation. In-water sediment samples from the vicinity of this former operation showed no evidence of a current source.

6. DEQ does not recommend TZW at this time.

NW Pipe

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *Yes, RI report 1st quarter 06*

2. Are there groundwater impacts at the site? *Y* es

3. If there are groundwater impacts, does the plume reach the river? No

4. Do COPCs exceed JSCS SLVs at or near the river bank? *No*
If so please provide a list of the main COPCs and approximate concentrations.

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *Pretty certain. GW gradient and modeling show plume not impacting river*

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *No*

Oregon Steel Mills

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *Yes – They installed 7 beach wells and additional upland wells. They also installed a background well off site in the upland. OSM prepared 2 groundwater document – SCE-TPH in Groundwater and SCE-metals in groundwater. (both submitted May 2006)*

2. Are there groundwater impacts at the site? *Upland groundwater is impacted by low level PAHs and TPH in the former sump area. The PAHs and TPH is not present in the beach wells above JSCS screening values. The elevated TPH observed was found to be due to naturally occurring organic acids – not petroleum. Their report is well documented and demonstrates that source control is not required for TPH in groundwater. The metals issue is less clear. Metal concentrations in groundwater are elevated above background and for As, Cd, Cu, Mn and Pb and are above JSCS screening values. Cd, Pb, and Cu are only 2-3 times the screening values while Mn and As are an order of magnitude to many orders of magnitude above screening values. The metals do not seem to migrate in groundwater, but occur specific to the geochemistry of local groundwater and the presence of slag beneath the water table. It is not clear whether source control measures for metals in groundwater will have any impact on the concentrations of metals in the river.*

3. If there are groundwater impacts, does the plume reach the river? *See above* .

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so

please provide a list of the main COPCs and approximate concentrations. *Yes - see above for metals.*

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *Very certain regarding the TPH in groundwater. Not so certain about metals in groundwater.*

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *Yes for metals in transition zone water.*

Premier Oils

1. No additional work has been conducted.

6. *DEQ recommends that the LWG conduct a TZW investigation off-shore of the southern portion of this site.*

Lakeside Industries

1. Other than the ongoing source control monitoring associated with evaluating the effectiveness of Gunderson's groundwater pump and treat system to control the TCA plume migrating across the Lakeside site, no additional groundwater work has been performed in the last year.

2. No groundwater impacts have been identified on the Lakeside site other than the Gunderson TCA plume. The LWG conducted in-water TZW work off-shore of Lakeside last year focusing on the potential TCA discharge area.

6. DEQ is not recommending additional in-water TZW at this site unless additional nature and extent TZW is required to characterize the TCA plume discharge zone.

GS Roofing

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? *No*

2. Are there groundwater impacts at the site? *Yes*

3. If there are groundwater impacts, does the plume reach the river? Not yet determined

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations. *No river bank samples exist*

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. N/A

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *Not at this time.*

Sulzer Pumps

1. Has there been additional upland groundwater investigation or data reported at the site in the past year? No

2. Are there groundwater impacts at the site? Yes

3. If there are groundwater impacts, does the plume reach the

river? *Unknown*

4. Do COPCs exceed JSCS SLVs at or near the river bank? If so please provide a list of the main COPCs and approximate concentrations. *PAHs at or near the JSCS SLVs.*

5. If no groundwater impacts have been identified, or the impacts do not appear to be reaching the river at levels of concern, please provide an approximate level of certainty for these conclusions based on site investigations completed to date. *Certainty not determined, but it is expected a weight of evidence approach will indicate the ":plume" is not of concern.*

6. Do you think that characterization of off-shore transition zone groundwater is warranted? *No*

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